



Centers for Disease Control
and Prevention (CDC)
Atlanta GA 30333

TB Notes
No. 2, 1999

Dear Colleague:

The 1999 International American Lung Association (ALA)/American Thoracic Society (ATS) conference was held April 23-28 in San Diego, California. While I had to miss this meeting because of my daughter's illness, it featured a great deal of new clinical, basic-science, and public health practice information on TB, including updates on global activities. There were several symposia, minisymposia, and poster-discussion sessions, as well as our annual public health poster session. I am told that the TB sessions, as always, were well-attended, with much enthusiastic discussion. I continue to be impressed by the intense interest in TB which has continued at the ALA/ATS meetings. If you have not been able to do so in the past, please consider attending these annual meetings in the future, as they are an inspiration, in addition to being a good place to network. As an added incentive to attend, please note that CDC and Canada's Centre for Disease Control will hold a joint public health poster session at next year's annual ALA/ATS meeting, to be held in Toronto.

The Advisory Council for the Elimination of Tuberculosis (ACET) met on June 9 and 10 at Corporate Square in Atlanta. The meeting consisted of a day and a half of updates and follow-up discussions on a variety of current topics. Dr. Ron Valdiserri and I gave some updates on selected division and center activities. I briefly reviewed the 1998 TB data: 18,361 new cases were reported, which represents a case rate of 6.8/100,000 population and a 7% decline from 1997; 42% of these cases were in foreign-born persons. We expect to publish these data in late summer or fall, both in a *Morbidity and Mortality Weekly Report (MMWR)* and in the annual surveillance summary. I also discussed the recent planning retreat attended by DTBE senior staff. At the retreat, we reaffirmed our dedication to the mission of TB elimination, and established DTBE priorities for improvement: case finding and completion of therapy; contact investigations and treatment of latent infection; targeted testing and adherence, specifically in HIV-infected persons and in class B1 and B2 immigrants; outbreak response and capacity building; conducting evaluation and economic analysis activities; and providing technical assistance and capacity building to global partners. Dr. Valdiserri talked about National HIV Testing Day, June 24; CDC is developing a short-term campaign in connection with this date as well as a long-term campaign called "Know Your HIV Status." Dr. Frank Collins of the Food and Drug Administration then gave an excellent update on the development of TB vaccines. The conclusion of his informative talk is that, while there have been promising results from some mouse trials, it will be some time before we have a TB vaccine that is better than BCG. On the positive side, the recent research and technologic advances make TB vaccine development a realistic undertaking. Wanda Walton, who is our new Chief of the

Communications and Education Branch, provided a comprehensive update on TB training and education activities as well as on the TB Training Summit. Dr. Charles Nolan and I presented information on DTBE's June 8 meeting with the Institute of Medicine (IOM) committee, which is reviewing DTBE's progress toward elimination. We also heard an update on the revision of *A Strategic Plan for the Elimination of Tuberculosis in the United States*. In the afternoon, the meeting presentations focused on international TB-related activities. Dr. Amy Bloom of the U.S. Agency for International Development (USAID) discussed recent TB-related activities at her agency. Dr. Bess Miller provided information about the international "Stop TB" initiative, and Dr. Nancy Binkin gave an overview of the current activities of her staff in the International Activities branch. For the remainder of the afternoon, Mr. Jack Spencer of the Division of Sexually Transmitted Diseases of NCHSTP discussed his division's development of a U.S. syphilis elimination strategy. The next day, the meeting attendees were welcomed by CDC's new director, Dr. Jeffrey Koplan. Drs. Patricia Simone and Ida Onorato then provided information on recent TB outbreaks and related follow-up issues, such as the importance of RFLP and of implementing adequate contact investigations to effectively improve adherence with treatment of latent TB infection. Mr. Scott McCoy, recently of the NCHSTP Office of Communications but now with the DTBE Communications and Education Branch, gave a well-received update on the National TB Communication Initiative; the late morning was given over to a presentation by Dr. Meade Morgan of the Epidemiology Program Office (EPO) on the complex and long-term project of integrating all CDC-wide surveillance activities.

As I mentioned above, CDC and ACET have developed an important document that will be published in the *MMWR* this August, *A Strategic Plan for the Elimination of Tuberculosis in the United States: A Renewed Commitment*. ACET decided to reassess the original plan in terms of current conditions and circumstances, and concluded that it is appropriate to make updated recommendations for achieving TB elimination. The group determined that, although there are challenges for TB elimination — for example, the need for new and additional tools and technology to fight TB, and serious TB problems in other countries that clearly affect TB control in the United States — there have been successes, and there are opportunities for future success as well. Moreover, if there is an opportunity to eliminate this disease from our country and from the world, there is a moral and societal obligation to do so. The plan makes the following recommendations: 1) tailor TB prevention, control, and elimination strategies to local epidemiology; 2) establish new strategic partnerships and reach new stakeholders; 3) sharpen and expand the use of current tools for TB prevention and control; 4) develop new tools for TB elimination; 5) recommit to the global battle against TB; and 6) mobilize advocacy and political will at national, state, and local levels.

Another important statement on which CDC and ATS are collaborating is a statement on targeted testing and treatment of latent TB infection; this is expected to come out later this year. This document will review the current data on the drugs and regimens that have been found to be effective in treating latent TB infection.

DTBE and the International Union Against Tuberculosis and Lung Disease (IUATLD) will cosponsor a TB late-breaker session Sept. 15-18 at the 30th World Conference on Lung Health, which is being held in Madrid, Spain. This late-breaker session is intended as a forum for the dissemination of information about developments and findings that are new and significant, and that occurred since the April 15, 1999, deadline for abstracts, or for which information has just become available. The session will consist of eight oral presentations of 10 minutes each. This is the first year that such a session is being presented. Drs. Ida Onorato and Pattie Simone are organizing the effort. It should be an interesting meeting; I encourage those of you attending the IUATLD conference to stop by this session.

The importance of contact investigations in the control and eventual elimination of TB in this country is becoming increasingly clear. Several DTBE staff are conducting studies, and other related activities are planned. It seemed an appropriate time to present reports on the spectrum of current DTBE contact investigation activities, so we have done just that in this issue of *TB Notes*. Please see the articles by Robin Shrestha-Kuwahara and by Suzanne Marks of the Research and Evaluation Branch; by Mary Reichler of the Surveillance and Epidemiology Branch; and by Maria Fraire of the Communications and Education Branch.

I know that many of you will be busy in the upcoming weeks and months preparing your FY 2000 recompeted cooperative agreement applications, which are due at the end of August. I hope that in spite of your busy schedules you will take a little time of well-deserved vacation to be with your families and to “recharge your batteries.” Many thanks for all your hard work and for all your contributions, recognized and unrecognized; you are helping the United States control TB and move closer to the reality of TB elimination.

Kenneth G. Castro, MD

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Division of TB Elimination ♦ National Center for HIV, STD, and TB Prevention

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Mycobacterium bovis in North Dakota

quarantine of approximately a 5-mile radius was placed on the area surrounding the infected dairy herd. The quarantine restricts movement of livestock into or out of the area unless a permit is issued by the state veterinarian. With assistance from the USDA, every herd in the quarantined area is being tested for TB, a process that will likely take several months to complete. In addition, extensive investigations have been initiated to trace sales of cattle from the infected herd to other areas, as well as to ascertain the source of infection.

Human Implications. The North Dakota Department of Health (NDDH) was notified by the state veterinarian on March 2 about possible human exposures to *M. bovis* in a dairy herd. The NDDH began working closely with the North Dakota Department of Agriculture to determine risk factors and exposed populations. The owner of the dairy herd sold milk from the cattle to a local cheese processing plant. The plant does not pasteurize the milk product, but instead ships it out of state where further processing is done. Individuals considered at risk for *M. bovis* exposure included persons who had ingested or handled unpasteurized dairy products, as well as individuals having direct contact with infected cattle (i.e., the owner of the dairy farm and his family). The following recommendations were provided for suspected exposures:

- Exposed persons should have a baseline tuberculin skin test (TST). An induration of 5 mm is considered

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positive. Those persons who test negative should be retested in 10 - 12 weeks after the last exposure.

- All exposed persons with positive TST results should have a review of symptoms, a physical exam, and a chest x-ray.
- Children who were exposed and are TST positive, and young children age 4 and under who were exposed (regardless of TST result) should have a chest x-ray. Children with positive (5-mm) reactions should receive INH prophylaxis. Children ≤ 4 years should receive INH prophylaxis until a negative result is confirmed by a retest administered 10 - 12 weeks following last exposure.
- INH prophylaxis for 6 - 9 months should be prescribed for those exposed and

TST positive (5 mm), children included.

A total of 106 individuals were skin tested; 101 (95%) tested negative, and five (5%) tested positive. Of the five individuals who tested positive, two were foreign-born individuals who had never been tested, one was an elderly person who may have been exposed to pulmonary TB as a child, another was exposed to the dairy herd, and the fifth person worked at the plant. Two of the five individuals had consumed unpasteurized dairy products.

Postexposure testing will continue for 10 - 12 weeks following last exposures for those at risk. We conclude that there was no definitive correlation between the infected persons and the infected cattle.

Testing of cattle in the quarantined area continues. To date, 3,051 animals have been tested from 32 different herds; 27 herds tested negative and four are pending. Only the one initial herd has been identified as infected.

—Submitted by Ruth Vogel, TB Program Mgr
North Dakota Department of Health

Texas: TB Control in Correctional Facilities Satellite Broadcast

On February 24, 1999, the satellite program "Tuberculosis Control in Correctional Facilities" was broadcast nationwide. There were 467 sites that registered before the conference. Some of the site coordinators passed on information about the broadcast to other sites in their area; as a result, an additional 39 sites accessed the conference and returned sign-in rosters and evaluations of the broadcast. To date, 2,431 participants signed a roster sheet that has been returned to the broadcast organizers. In addition, many sites recorded the broadcast on tape for later viewing, further increasing the total number of people who

were able to view the program.

During the introduction to the broadcast, the moderator Shari Perrotta from the Texas Department of Health gave information to allow the audience to call in, fax, or e-mail questions. The speakers answered as many of the questions as possible between the program segments.

The program began with an overview by Dr. Jonathan Weisbuch, Chairman of the National Commission on Correctional Health Care, on the reasons why TB is a special concern in correctional facilities. Next Dr. Newton Kendig, Medical Director for the Federal Bureau of Prisons, talked about the conditions under which TB is and is not transmitted. He also discussed the primary methods institutions use to prevent transmission of TB. The proper way for an individual to put on a respirator was demonstrated. Dr. Stephen Weis, Professor of Medicine at the University of North Texas Health Science Center and TB Controller for the Ft. Worth – Tarrant County Health Department, talked about the special problems that correctional facilities have in arriving at a diagnosis of TB. He also discussed ways to ensure that treatment is successful by using direct observation and developing a close relationship with the appropriate health department to provide continuity of care if the inmate is released to the community while still under therapy. The first three speakers then answered questions from the audience.

The second section of the program started with a discussion by Dr. Michael Puisis, Regional Medical Director in New Mexico for Correctional Medical Services, on the basics of a screening program, including the different approaches used by long-term and short-term correctional facilities. Captain Marcia Withiam-Wilson, Chief U.S. Public Health Service Officer at the U.S.

Marshals Service, spoke to the audience concerning the new policy of the U.S. Marshals Service that requires inmates to have documentation (Federal Form 553) certifying that they have been cleared for TB before they can be placed on the airplanes of the Justice Prisoner and Alien Transport System. She also discussed the precautions that can be taken if an inmate with infectious TB must be transported. Ms. Mae Pasquet, Director of Correctional Health Services for the John Peter Smith Health Network (health care provider agency for the Ft. Worth – Tarrant County Jail), explained the steps a facility can take to develop a written plan for their TB control and prevention protocols. This group of speakers then took questions from the audience.

The third and final segment of the program began with a discussion by Dr. Orlando Pile, Chief of the Communicable Diseases Unit for the Los Angeles County Sheriff's Department, regarding how to establish a TB training program for correctional facility staff. Dr. Michael Kelley, Director of Preventive Medicine for the Texas Department of Criminal Justice, explained how to conduct a contact investigation within a correctional facility when a person with active infectious TB may have exposed other inmates and correctional employees. Dr. Brian Smith, Regional Director for the Texas Department of Health Public Health Region 11, explained the role that the local health department plays in finding the people in the community who may have been infected by someone within the correctional facility. The program concluded with another question-and-answer period. The participants' and site coordinators' evaluations, which have been forwarded to the Texas Department of Health TB Elimination Division, are currently being analyzed for internal use.

If you missed the program and would like to

order a tape of the broadcast, please contact Ray Silva via e-mail at ray.silva@tdh.state.tx.us or by phone at (512) 458-7447. The cost for a tape is \$10 including shipping.

—*Reported by Phyllis E. Cruise, Senior PHA
and Ann Tyree, Communication Specialist
Texas Department of Health*

San Diego's CURE-TB: U.S./Mexico Binational Referral System

CURE-TB is the U.S./Mexico binational referral system that was funded in June 1997 by the State of California Department of Health Services and is operated by the San Diego County TB Control Program. The system was built upon a referral infrastructure that existed for years between San Diego and various Mexican TB programs. The number one priority of CURE-TB is to improve continuity of care for active TB patients. This system provides guidance and education to patients moving between Mexico and the United States during the course of their treatment. CURE-TB also offers a link between health providers in Mexico and the United States by notifying them of a patient's arrival to their communities and by facilitating the exchange of patient clinical information. CURE-TB is the only health department-based system offering referrals nationwide between Mexico and the United States.

In June 1998, CURE-TB and the Mexican National TB Program reached an agreement on how to improve and expand the use of CURE-TB referral services to all Mexican states. Recommendations from the National TB Program were implemented in daily CURE-TB procedures. In 1999, information on CURE-TB services was included on the Mexican national patient treatment card, the Carnet, which is provided to TB patients throughout the country. Currently, CURE-TB notifies

national, state, and local providers of the patients who move from the United States to Mexico and vice versa. In less than 2 years, CURE-TB has established extensive communications between the Mexican Health Department sector (Secretaria de Salubridad y Asistencia) and U.S. TB programs. An active database has been developed and implemented to evaluate and document the referral process. The CURE-TB toll-free number, available to both countries, has enabled patients and providers from Mexico to contact CURE-TB directly when a patient is traveling from Mexico to the United States.

As states across the United States have become aware of CURE-TB, they have begun to request binational referral services. In September 1998, CURE-TB services were outlined in the NTCA newsletter, *The Red Snapper*. The program has gained rapid acceptance, and as of June 1999, TB programs from 21 U.S. states have used CURE-TB services to send referrals to 29 of the 32 Mexican states. In 1997, these 21 states reported 71% (1,200/1,685) of all Mexican-born TB patients in the United States.

Pedro's Story

One of the most important roles of the CURE-TB Binational Referral System is educating TB patients about their disease and the importance of finishing the prescribed treatment. Pedro's story is an example of how CURE-TB helps patients finish their treatment.

Pedro was diagnosed with TB in April of 1998 in a northern California county. He was started on medications and left for Jalisco, Mexico, a week later. The California doctor sent a referral to CURE-TB and CURE-TB staff contacted Pedro in Jalisco via telephone. At the same time, CURE-TB notified the Mexican National TB Program of Pedro's arrival in Jalisco.

Pedro informed CURE-TB staff that upon his arrival he had visited a local clinic where he was evaluated using available diagnostic procedures (sputum smear tests and a clinical evaluation) and was told that he did not appear to have TB. CURE-TB staff asked Pedro for the local clinic's number in order to provide his physician with Pedro's past medical history. CURE-TB counselors immediately called Pedro's physician to provide information on Pedro's previous diagnostic studies, which included culture results positive for *M. tuberculosis*, and his treatment course while in the United States. Pedro's physician appreciated this information and decided to continue Pedro's treatment. CURE-TB staff communicated with Pedro again to let him know that he needed to visit his physician as soon as possible.

A month later, CURE-TB staff received the final results on Pedro's TB drug resistance tests from the California clinic: Pedro's TB isolate was resistant to one drug, isoniazid. This was immediately communicated to Pedro's physician, who added ethambutol to his original three-drug regimen. Pedro finished his treatment in November of 1998 and is one of the success stories of the CURE-TB referral system. The completion of his treatment was also communicated to the county in California where Pedro currently resides after returning from Jalisco.

Had this exchange of information between CURE-TB, Pedro, and his providers in the United States and Mexico not taken place, Pedro's treatment would likely not have been continued, and he may have gotten sicker, and possibly infected people around him. Cases such as Pedro's are common to the CURE-TB system. Exchanging information between providers and educating and guiding patients are essential factors in completing treatment for TB patients moving between the United

States and Mexico. CURE-TB staff are committed and eager to continue providing these services. To send a referral or find out more about CURE-TB, call Ms. Sonia Contreras at (619) 692-5710.

—Reported by Kathleen Moser, MD, MPH
San Diego Co. Dept of Health Services

Update on the Aggregate Reports for TB Program Evaluation

The venue of the training workshops for these reports has been changed from "regional" to Atlanta, because more staff from DTBE were needed to assist in the course. The dates for the 2-day workshop are June 29 & 30 and July 27 & 28.

At least one person from each TB cooperative agreement area should attend the workshop. The DTBE program consultants are working with their areas to select the candidates for training. The ideal candidates would be the persons implementing and maintaining the reporting system.

Questions about the workshop content and format should be directed to Rita Varga, workshop coordinator, at (404) 639-8125.

—Reported by John Jereb, MD
Division of TB Elimination

UPDATES FROM THE RESEARCH AND EVALUATION BRANCH

Comparable Specificity of Tubersol and Aplisol - Summary

The following is a summary of a recently published journal article: Villarino ME, Burman W, Wang YC, et al. Comparable specificity of 2 commercial tuberculin reagents in persons at low risk for tuberculous infection. *JAMA* 1999;281(2):169-171.

The detection of latent TB infection is the basis of preventive therapy and a key indicator of TB transmission. Worldwide, and for more than 60 years, the tuberculin skin test has been used to diagnose latent TB infection. In the United States, two companies manufacture tuberculin for commercial sale: Parkdale Pharmaceuticals, which makes Aplisol, and Pasteur Mérieux Connaught USA, which makes Tubersol. Despite the fact that federal regulations exist for the standardization of tuberculin manufacturing and testing, there have been reports in the medical literature as well as personal perceptions that one or both of these commercial tuberculin reagents may be associated with a high rate of false-positive reactions (i.e., reactions read as positive in persons who are presumed to not be latently infected with TB). To investigate this possibility, we studied the two commercial tuberculin skin test reagents and the standard tuberculin purified protein derivative (PPD-S1) to determine whether either of the commercial reagents is more likely than PPD-S1 to produce false-positive results. PPD-S1 is the nation's biologic standard for tuberculin PPD and is stored and released for use by the Food and Drug Administration.

We conducted the study at health departments in Denver, CO, Marion County, IN, and Seattle-King County, CA, and universities in Atlanta, GA, San Diego, CA, and Tucson, AZ, and included persons between the ages of 18 and 50, born in the United States or Canada, with no history of exposure to or infection with TB and no known immunodeficiency that would interfere with their ability to react to skin testing. Participants received four tuberculin skin reagents. When they returned to the study site for skin test reading (48 to 72 hours after receiving the injections), two experienced study personnel interpreted and recorded the

results using a standard protocol. The study was double blind: each expert test-reader knew neither the identity of the test reagent each participant had received, nor the results of the other reader.

The median age of the study participants was 27, and 65% were female; 49% of participants were students, 69% were white, and most (81%) were born in a western or central U.S. state (also includes Vancouver), with 19% born in an eastern U.S. state (also includes Ontario and Quebec). There were no clinically significant adverse events as a result of skin testing, and of 1,596 persons enrolled, 1,555 (97%) were eligible and included in our analysis. Among our study population, we found that reactions observed after testing with Aplisol were slightly larger (mean = 3.4 mm) than those observed after testing with Tubersol (mean = 2.1 mm). However, these reaction sizes were not significantly different from the reactions observed after testing with PPD-S1 (mean = 2.5 mm), nor did they significantly change the proportion of skin tests interpreted as positive or negative. Assuming that all participants in our study were truly not infected with TB, and using a 10-mm cut-off, our study shows that the specificities of the two commercial products were high (Aplisol = 98.2% and Tubersol = 99.2%) and not significantly different from that of PPD-S1 (98.9%).

Clusters of unexpected positive tuberculin skin test results have been previously reported. However, none of these previous reports involved testing with the two commercial products simultaneously. Thus, the reports cannot exclude the possibility of false-negative reactions associated with one of the products, or of another kind of error associated with tuberculin skin tests when they are not performed under the same conditions. Skin testing variation related to human factors can only be

controlled to a finite degree. In clinical practice, these factors cannot be eliminated completely and should always be recognized as potential sources for false-positive tuberculin skin test results. However, the main conclusion of the study is that the choice of commercial product has little impact on test performance and that either product can be used with confidence to correctly classify persons as infected or uninfected with *M. tuberculosis*.

—Reported by Elsa Villarino, MD, MPH
Division of TB Elimination

Preliminary Findings from Two Contact Investigation Studies

1. Patient-Provider Communication During TB Contact Investigations

During 1998, a study was undertaken to explore factors associated with the identification of contacts during contact investigation (CI). Focus groups were conducted at three U.S. sites (San Francisco, CA; San Diego, CA; and Dallas, TX) between August and December. TB staff conducting CI interviews, as well as pulmonary smear-positive patients currently receiving treatment for active TB, were recruited for participation in focus groups. Patients were recruited into one of three groups based on their country of origin and information recorded in their charts: a) U.S.-born patients who identified at most three contacts ("few"), b) U.S.-born patients who identified at least eight contacts ("many"), or c) Mexico-born patients ("Mexico-born"). Patients from Mexico were included in the study to explore their cultural attitudes and behaviors regarding TB and the CI for comparison with the U.S.-born participants. Study objectives were a) to determine what factors are associated with the identification of few contacts, b) to identify patients' perspectives about CI, c) to identify barriers to eliciting contacts'

names during a CI, and d) to identify staff skills and qualities that are important for successful CI interviewing. Analysis and reporting of the data will be completed in the coming months. Preliminary findings follow.

Thirteen focus groups were conducted with 18 CI staff and 54 patient participants. Of the 31 U.S.-born patients, 65% had a history of substance abuse and 36% had a history of homelessness, according to patient chart records. The median number of contacts identified was two in the "few" group and 12 in the "many" group. By comparison, of the 23 Mexico-born patients, 17% had a history of substance abuse and 13% had a history of homelessness. The median number of contacts identified was six.

Preliminary findings indicate that, despite being currently treated for active TB, patients lacked accurate knowledge about TB and how it is transmitted. Some patients believed that TB could be spread by sharing eating utensils, drinking from the same bottle, and shaking hands with a person with TB. Others, while they did not indicate specific misunderstandings, had many questions regarding risk factors, treatment implications, and even their own diagnosis. With respect to the CI, however, patients showed a good understanding of its purpose and importance. Most patients, including those recruited into the "few" and "substance abuse" groups, claimed to have provided the names of contacts with ease, in spite of the perceived stigma attached to TB and fears of being alienated or losing a job. They expressed feelings of moral and personal obligation to provide the information requested of them. Among the minority of participants who reported reluctance to provide names, fear of alienation, mistrust of the health department, and a sense of invasion of privacy were identified as concerns.

Staff participants emphasized that, in addition to having a nonjudgmental approach, good listening and communication skills were key components of successful CI interviews.

Communication with patients from other cultures was noted as one of the biggest challenges for many CI interviewers. When asked about training needs, many reported a desire for training on cross-cultural issues and working with interpreters. Staff also expressed a need for periodic updates on new developments in areas that impact their patients.

These preliminary findings were unanticipated. It was hypothesized that patients recruited into the “few” groups were reluctant to provide names, but the results showed otherwise — that most of the patients reported identifying contacts willingly and with ease. This held true even with groups that had a history of substance abuse and/or homelessness who, according to the information in their charts, had identified three or fewer contacts. One possible explanation is that CI information in the charts was incorrect or incomplete; that is, some names that were provided may not have been recorded because the patient could not provide locating information on the contact. Another possible explanation is that patients and staff may not share the same understanding of what a “contact” is. For example, patients could have readily provided the names of persons with whom they spent time but who were not considered to have been exposed to TB by staff and thus not followed up. This explanation is plausible, particularly in light of the finding that many patients held misconceptions about TB and its transmission. If, for instance, a patient believes TB is spread by drinking from the same bottle, he may identify all of (yet *only*) his drinking buddies. This would potentially result in the patient’s listing many names

and feeling compliant, just as some patients appeared to feel in the focus groups when recalling their behavior in the CI interviews.

The findings from this study will lead to training recommendations. For example, one key finding — that patients, even those who were near completion of therapy, had questions and even misconceptions about TB and how it is transmitted — clearly underscores the importance of communicating and educating effectively on a level that patients understand. CI staff need to make a conscious effort to tailor their language and explanations to the patient and avoid the use of jargon. Staff should be cautious of “information overload,” particularly if the CI takes place during the emotional aftermath of a TB diagnosis. Listening carefully while asking the patient to repeat what s/he has understood is essential.

Additionally, heightened cultural sensitivity and awareness are extremely important for successful communication with persons who may have lifestyles, orientations, educational levels, and economic and/or cultural backgrounds different from those of the staff. Working with non-English-speaking foreign-born persons raises further communication challenges, as often the interpreters are family members or friends. To ensure accurate communication, staff should be trained in working effectively with both professional and nonprofessional interpreters.

Although preliminary, the findings from this study illustrate the valuable types of information that can be gained from conducting focus groups. It was known that CI interviews do not always yield contacts, and that the nature and source of the problem needed to be explored. The focused yet flexible characteristic of these groups facilitated obtaining in-depth

information about some of the factors associated with the identification of few or no contacts. Using an objective approach, the researchers used guided discussions with both staff and patients to obtain their perspectives on the issue. Typical of focus groups, the findings that have been generated are qualitative and are in the form of opinions and thoughts associated with beliefs, attitudes, and feelings about particular issues — findings that are not ordinarily generated by quantitative epidemiologic studies.

The findings have allowed us to view this CI issue from both the staff's and the patients' perspectives. They will be incorporated into training elements and recommended for incorporation into training curricula being developed by the Communications and Education Branch of DTBE. The recommendations may also be used by local health departments to enhance the quality of their CI training programs.

Questions regarding this study should be addressed to Robin Shrestha-Kuwahara at (404) 639-8123.

—Reported by Robin Shrestha-Kuwahara, MPH
Division of TB Elimination

2. Outcomes of TB Contact Investigations

The Prevention Effectiveness Section of the Research and Evaluation Branch in DTBE collected data from June 1998 through January 1999 for the Outcomes of TB Contact Investigations (CI) Study. The study objectives were to 1) describe the policies and procedures of TB programs and health departments conducting CI, 2) describe outcomes of CI, 3) identify case and contact characteristics affecting outcomes of CI, 4) identify factors associated with preventive therapy (PT) completion for all contacts and high risk

contacts, and 5) document resources used in CI. Eleven TB program sites participated, selected to form a representative sample of persons completing preventive therapy: Fulton County, GA; Chicago, IL; Houston, TX; Los Angeles County, CA; Shelby County, TN; New York City, NY; Newark, NJ; San Diego County, CA; San Francisco, CA; Santa Clara County, CA; and King County, WA. This is the first comprehensive study on how contact investigations vary by location, program characteristics, and patient characteristics. Analysis and dissemination of data to the sites will be completed in coming months. Preliminary results follow.

Procedures for CI differed among the sites, including who performs CI, who supervises it, and what data are collected. Contact investigation was performed by outreach workers at six sites, by public health nurses at one site, and by both outreach workers and public health nurses at four sites. TB program personnel directly supervised CI workers at six sites, while other health department staff supervised the workers at the remaining sites. Data collected on contacts varied, since contact classifications and components of summary data forms differed. The most common information collected about contacts included age, gender, and close or casual status, in addition to TB skin test (TST) dates and results, chest x-ray (CXR) date and results, and PT start date. Only two sites recorded the date of a contact's last exposure to the infectious case for determination of follow-up TST date. Risk factors for disease (especially HIV status) and for nonadherence (e.g., substance abuse, homelessness) were not often recorded.

In analyzing data on 13,000 contacts of 1,048 pulmonary, AFB sputum-smear-positive cases, we found a median of five contacts per case (average of 12,

range 0-822 contacts per case). Cases listing a greater number of contacts were more likely to be female, foreign-born, or Hispanic. The 88 cases listing zero contacts were more likely to be male, U.S.-born, substance abusers, or homeless persons.

Since all 11 sites either distinguished between close and casual contacts or only recorded data on close contacts, data on approximately 5,100 close contacts were selected for analysis. Of these close contacts, 10% had a history of a positive TST, 11% received no TST, and 79% had a TST placed. Of those having a TST placed, 2% were determined to have active TB, 5% were converters (had an initial negative TST, then a positive TST at follow-up), 33% were newly-identified TST positives, 58% were TST negative, and 2% had unknown TST results. The 58% who were TST negative included those receiving only one TST; 43% of those initially testing negative had no record of a follow-up TST. Of TST positives, 82% were recommended to take PT, of whom 93% started PT. For a third of those started on PT, completion status was either "refused/uncooperative," "lost to follow up," or "unknown." Fifty-seven percent of those started on PT completed, but only 44% of those eligible for PT completed. Those started on PT who didn't complete took a median of 2-3 months before stopping. Asian and foreign-born persons were more likely to complete PT. Children under 6 years of age were *not* more likely than adults and older children to complete PT. For other high-risk groups (HIV positive, homeless, substance abusers) conclusions cannot be made about PT completion because of limited data. HIV status was known for only 13% of close contacts analyzed. Only half of all close contacts known to be at high risk for disease (HIV positive, children aged 5 or younger, diabetics) were placed on presumptive treatment for latent TB

infection, regardless of TST result.

From these preliminary results, several conclusions can be made. First, there is a need to determine common elements of data collection for contacts, especially high-risk factors for disease and nonadherence. Second, CI training curricula need to address differences in testing, placement on PT, and follow-up through completion of therapy. Third, interviewing skills should be assessed for identifying contacts among U.S.-born persons, males, substance abusers, or homeless persons. Fourth, a strategy for assessing all contacts, both TST negative and TST positive, for high-risk factors should be developed. Fifth, HIV counseling, testing, and coordination of care for contacts at risk for HIV should be provided, along with presumptive treatment of latent TB infection for known HIV-positive persons. Sixth, contacts need to be prioritized by high-risk status and followed up through PT completion accordingly. Ensuring PT completion is part of the contact investigation process. And finally, methods to evaluate the quality of CI need to be developed.

The finding that foreign-born contacts were more likely to complete PT than U.S.-born contacts bodes well for TB control in the United States, given that each year a larger percentage of U.S. cases are foreign born (and foreign-born cases are likely to have foreign-born contacts). However, since 95% of contacts were placed on self-administered, rather than directly observed, preventive therapy, we don't know with certainty whether foreign-born contacts were more likely to have completed or were more likely to have reported completing PT.

Completion rates may be higher with a 2-month PT regimen, based on the observation that half of those who did not complete PT managed to take 2-3 months of therapy prior to stopping. Current

CDC/ATS recommendations include shorter alternatives to a 9-month INH PT regimen for HIV-positive adults: 1) a daily 2-month rifampin and pyrazinamide regimen for those not taking protease inhibitors, and 2) a daily 2-month rifabutin and pyrazinamide regimen for those taking certain protease inhibitors. While new guidelines are being developed, a 2-month regimen may also be used as an alternative to the standard 6-month INH regimen for HIV-negative adults, especially in settings where provision of longer courses of preventive therapy has not been feasible (i.e., jails). A standard 2-month regimen for adult contacts, regardless of HIV status, should be investigated to determine its programmatic effectiveness and cost.

Provider knowledge of HIV status is essential for the optimal provision of treatment for latent TB infection, given its recommendation for HIV-positive contacts regardless of age, TST results, or history of previous PT. HIV status is also needed to determine the proper drug regimen for HIV-positive adults and for the coordination of care overall. Ideally, TB program staff should be trained and prepared to offer HIV counseling and testing to close contacts at risk for HIV.

In the next few months, analysis of resources used during contact investigation and of organizational factors associated with successful CI outcomes will be presented. Questions regarding the study should be addressed to Suzanne Marks, principal investigator, or Zach Taylor, co-principal investigator, at (404) 639-8123.

—Reported by Suzanne Marks, MPH, MA
Division of TB Elimination

UPDATE FROM THE SURVEILLANCE AND EVALUATION BRANCH

Evaluation of Contact Investigation Procedures, Practices, and Results

Treating individuals recently infected with *M. tuberculosis* is a cornerstone of efforts to eliminate tuberculosis (TB) in the United States. Since approximately one third of contacts to patients with active pulmonary TB become infected following exposure, they represent a high-risk group for TB. Thus, conducting contact investigations to identify and screen persons potentially exposed to infectious cases of TB is essential to the TB elimination effort. A retrospective study was conducted in 1998 to characterize current contact investigation procedures, practices, and results at study sites in Colorado, Maryland, Massachusetts, Mississippi, and New Jersey. Study sites were chosen through a competitive agreement process. Health department records were reviewed for culture-positive pulmonary TB cases among persons ≥ 15 years of age reported in 1996 for each of the five study areas, and for all identified contacts of these cases. Preliminary results of this study are summarized in this report.

A total of 6,991 contacts were identified for 360 reported TB cases. The mean and median number of contacts identified per case were 19 and 5, respectively (range, 0 - 720). No contacts were identified for 10% of all cases. Among the contacts identified, 47% did not complete tuberculin skin test (TST) screening: 15% were not screened and 32% had an initial TST but no follow-up TST ≥ 10 weeks postexposure. Among the contacts screened, 1% had active TB at the time of investigation, 4% had initial negative and subsequent positive TSTs (converters), 18% had initial positive TSTs

with no prior test result, and 77% had negative TSTs ≥ 10 weeks after last exposure. Only 71% of all contacts with newly documented positive TSTs (persons with initial positive TSTs and converters) were known to have had treatment of latent infection recommended, and only 32% were known to have completed a full course of treatment of infection. Contacts < 15 years of age, TST converters, and close contacts were more likely to have treatment of infection recommended, and TST converters were more likely to complete a full course of treatment of infection. For those for whom treatment of infection was recommended, persons in all age groups were equally likely to complete therapy. Birthplace was missing for nearly half of all contacts. Of persons with known birthplace, U.S. and foreign-born contacts were equally likely to have treatment of infection recommended, and equally likely to complete ≥ 6 months of therapy.

Definitions of a contact or a close contact varied considerably between study areas. In addition, most study areas had no standard criteria for expanding contact investigations beyond the "inner circle" of contacts. The types of data being collected during contact investigations also varied considerably between study areas. Furthermore, a number of factors associated with case infectiousness, contact susceptibility to TB infection, and contact risk of progression to TB disease were missing from most case and contact health department records.

Findings from this study highlight the need for 1) improvement in the contact investigation process to ensure that all contacts are identified, all identified contacts are completely screened, and all eligible contacts complete a full course of preventive therapy; 2) written documentation of key case and contact data; 3) a set of standard indicators so that

health departments can monitor the effectiveness of each step in the contact investigation process; 4) standard definitions for what constitutes a contact and a close contact; 5) standard criteria for expanding contact investigations; and 6) definitions for the extent of contact investigation needed in various epidemiologic settings. A prospective study is needed to provide all the information necessary to improve and standardize the contact investigation process. CDC is sponsoring such a study in collaboration with the Colorado Department of Health, Denver Metro TB Control, the Maryland Department of Health and Mental Hygiene, the Mississippi State Department of Health, the New Jersey Department of Health and Senior Services, and the New Jersey Medical School National Tuberculosis Center.

—Reported by Mary Reichler, MD
Division of TB Elimination

UPDATES FROM THE COMMUNICATIONS AND EDUCATION BRANCH

TB Interviewing and Communication Course

Health departments and health care providers have inquired about the availability of a course on communication skills for conducting contact investigations and patient education. In the past, DTBE conducted a TB Interviewing and Communication course. This course contained many elements from the original Interviewing, Investigating, and Influencing course, including instruction in effective communication skills for interviewing TB patients and following up on contacts. The TB Interviewing and Communication course has not been conducted since October 1994.

In order to meet the recent demands, the TB Interviewing and Communication course will be revised to include recent patient-provider communication strategies, as well as strategies for doing contact investigations, providing patient education, and dealing with special populations. The course will provide education and training materials for TB workers and supervisors responsible for patient education, contact investigation, directly observed therapy, and other outreach services in the clinic or field.

The revision of the course will be based on (1) focus group interviews with persons who have taken and taught the current version of the course; (2) reviews of the following training materials and studies:

- The Effective TB Interview Course I;
- The Effective TB Interview Course II;
- The content from the Contact Investigation and Adherence supplemental self-study modules (being developed);
- The preliminary findings from the study on "Exploring Patient-Provider Communication during Contact Investigation," conducted by the Research and Evaluation Branch (REB) Prevention Effectiveness

Section (PES); from the study on "Outcomes of TB Contact Investigation," also conducted by REB/PES; and from the Surveillance and Epidemiology Branch (SEB) study on "Evaluation of Contact Investigations of TB Cases";

- The findings from the "Atlanta TB Patient Education Project" on cultivating patient engagement skills;
- The NJ Model Center's standardized patient approach to teaching interviewing techniques to medical students;
- Contact investigation training courses developed by local TB programs, e.g., NYC and Texas; and
- Communications/interviewing techniques taught in the CDC's STD course and in the HIV Counseling and Testing course.

Pilot testing of this new course will begin in late 1999 or early 2000.

—Reported by Maria Fraire, MPH, CHES
Division of TB Elimination

Web-Based Self-Study Modules on Tuberculosis

The Web-based version of the *Self-Study Modules on Tuberculosis* is an interactive TB training course for health care workers that provides a base level of TB knowledge accessible world-wide through the Internet. The Web-based course builds upon existing products: the print-based *Self-Study Modules on Tuberculosis* and the *Satellite Primer on Tuberculosis*. The Web-based *Self-Study Modules on Tuberculosis* course was developed to maintain consistency with past media (print-based and satellite products) while incorporating enhancements that lend themselves to Web-based instruction including: 1) interactive animations; 2) multicolored graphics and figures; 3) interactive study



questions and case studies; 4) hypertext links between the modules and to other TB resources; and 5) on-line continuing education. The Web-based Self-Study Modules on Tuberculosis course has several additional benefits:

- Provides an innovative approach to TB education and training
- Provides far-reaching potential as access to Web-based training (WBT) increases
- Provides access to new target audiences as management of TB shifts to nontraditional providers outside of health departments, such as managed care staff and private physicians, as well as nursing and medical students.
- Allows quick access to TB education and training materials for geographically diverse and isolated populations with access to the World Wide Web. With increasing commitments to address the global TB problem, accessibility and distribution of TB training materials through the Internet will take on increased significance.

The final version of the course was released in June 1999. Participants can earn 24 continuing nursing education contact hours (CNEs) or 2.0 continuing education units (CEUs) through the on-line continuing education component of the course. The Web address for the Web-based *Self-Study Modules on Tuberculosis* course is as follows:

www.cdc.gov/phtn/tbmodules

—Reported by Nickolas DeLuca
Division of TB Elimination

NCHSTP Collaborates with NCID and CARE for a Regional *Prevention Through Preparedness* Workshop in Tanzania

TB accounts for nearly one fourth of all preventable adult deaths in developing

countries, and Africa has one of the highest infectious pulmonary TB rates in the world. The impact of TB can be lessened by teaching prevention and control strategies to health professionals.

As part of the CARE-CDC Health Initiative (CCHI), scientists and health educators from the National Center for HIV, STD, and TB Prevention (NCHSTP) and the National Center for Infectious Diseases (NCID) conducted a workshop for 16 people consisting of CARE staff members, district medical officers, and ministry of health representatives from seven Anglophone African countries. The workshop, entitled *Prevention through Preparedness*, was held February 8 - 13, 1999, in Mwanza, the United Republic of Tanzania, with the assistance of local facilitators. It focused on building the capacity of health professionals in epidemic preparedness, infection control of viral hemorrhagic fevers (VHFs), and prevention and control of cholera and TB. The CDC team included Sherif Zaki, Infectious Disease Pathology Activity, NCID; Rob Quick, Foodborne and Diarrheal Diseases Branch, NCID; Kathy Cavallaro, Amy Corneli, and Helen Perry, Special Pathogens Branch, NCID; and Eugene McCray, Surveillance and Epidemiology Branch, DTBE, NCHSTP, and Rose Pray, Communications and Education Branch, DTBE, NCHSTP.

During the TB portion of the workshop, participants learned about the global TB situation, TB transmission and pathogenesis, diagnosis and treatment, and practical techniques to reduce the risk of TB transmission within African health facilities. The workshop facilitators used case studies, discussion sessions, and site visits to reinforce classroom presentations of the TB topics.

Workshop participants also learned how to suspect a case of VHF, use locally-

available supplies for limiting disease transmission in a health facility, manage VHF outbreaks, and use data more effectively in recognizing and responding to epidemics of cholera to prevent unnecessary morbidity and to reduce mortality.

—*Reported by Rose Pray, RN, MS
Division of TB Elimination*

Training Course on Multidrug-Resistant TB in the Baltics

To address the problem of multidrug-resistant TB (MDR TB) in Russia and the Baltic states, a pilot training course was conducted in Tartu, Estonia, March 15-17, 1999. Physicians, laboratory directors, and health care administrators from Russia, Estonia, Latvia, and Lithuania attended the course held in the TB hospital in Tartu.

Because some participants did not speak English, and some of the instructors did not speak Russian, simultaneous translation (Russian/English) of presentations and questions and answers was provided. Faculty for the course included Drs. Michael Iseman of the National Jewish Center for Immunology and Respiratory Medicine; Sven Hoffner of the Swedish Institute for Infectious Disease Control; Richard Zaleskis, World Health Organization; and Peter Cegielski, Nancy Binkin, and Wanda Walton of DTBE.

Course topics related to MDR TB included diagnosis, laboratory testing, evolution of MDR TB, medication, surgery, case management, infection control, and adherence. Class participants also presented cases for discussion with faculty and other class members.

At the end of the course, participants were asked to complete evaluation forms regarding the benefit of each subject

covered, as well as their suggestions for changes, other topics to add to the course, and what they planned to do differently in their own program as a result of attending the course. In regard to what participants planned to do differently, responses included plans to change treatment regimens, to change the management of MDR TB patients; to increase the use of DOT; to collect data on MDR TB patients; and to share course information with colleagues. Comments also indicated that the course was beneficial to all attendees.

Follow-up plans include the revision of course materials based on both faculty and participant comments. Materials (including translated materials) will be made available to other health care providers for duplication of the course.

—*Reported by Wanda Walton, M.Ed.
Division of TB Elimination*

INTERNATIONAL ACTIVITIES

The “Stop TB” Initiative

In November 1998, Dr. Gro Harlem Brundtland, the recently appointed Director General of the World Health Organization, launched the “Stop TB” Initiative. The “Stop TB” Initiative is a WHO-hosted global partnership whose mission is to put TB higher on the public health agenda internationally and to substantially increase the investment in TB worldwide. It aims to increase involvement of international partners at all levels, including international health agencies, donor agencies, governments, nongovernmental organizations, professional societies, and community organizations involved in TB at the country level. The focus of the initiative is on the 22 “high-burden” countries that WHO has identified as responsible for approximately 80% of all reported cases of TB in the world. These include

Afghanistan, Bangladesh, Brazil, Cambodia, China, the Democratic Republic of the Congo, Ethiopia, India, Indonesia, Kenya, Myanmar, Nigeria, Pakistan, Peru, the Philippines, the Russian Federation, South Africa, Thailand, Uganda, the United Republic of Tanzania, Viet Nam, and Zimbabwe. In addition, countries with extremely high rates of TB, especially those impacted by the HIV epidemic, will be targeted.

The "Stop TB" Initiative will focus attention on addressing the specific constraints to action on TB identified at the London Ad Hoc Committee Meeting on the Global TB Epidemic held in March 1998. The actions for which constraints were identified at this meeting include political will and commitment, human resource development, secure supply of quality anti-TB drugs, research, financing, organization and management, information systems, and health sector reform.

The main products of the "Stop TB" Initiative will be 1) a global action plan, to offer solutions to the most pressing constraints to action, identify roles of different partners, and guide would-be investors in TB control towards coordinated, prioritized actions; 2) a drug supply facility, to provide universal availability of TB drugs in improved forms, specifically fixed dose combinations; 3) a global research agenda, to build on the work of WHO and others by focusing on community needs, health systems and services research, and a medium/long-term new tools development strategy; and 4) a global charter against TB, to catalyse and secure public agreements among donor agencies and high burden countries on specific steps to be taken to control TB, including tools and indicators to monitor and report on progress.

The founding partners of the "Stop TB"

Initiative are the American Lung Association, the American Thoracic Society, CDC, the International Union Against TB and Lung Disease, the Royal Netherlands TB Association (KNCV), the World Bank, and the WHO.

A series of activities and events are planned over the next 1 to 2 years to strengthen the partnership and build the foundation for an expanded global campaign. During the summer, the Initiative will sponsor a series of regional workshops with the highest-burden countries to enhance participation at the country level. In addition, workshops on health-sector development and control of infectious diseases and on political will and commitment to TB control are planned for 1999. A larger ministerial conference, co-organized by the "Stop TB" Initiative members and the Government of the Netherlands, is planned for March 2000. This conference will bring together the ministers of health as well as the persons responsible for finance, development, or planning from the highest-burden countries to set the stage for expanded country action against TB across sectors of government and society.

CDC is actively participating in the "Stop TB" Initiative. Mark Fussell, DTBE public health advisor, has been detailed to WHO headquarters in Geneva as part of the secretariat of the Initiative. Dr. Bess Miller, Associate Director for Science, and Carl Schieffelin, Deputy Director, DTBE, are the CDC representatives to the Steering Committee. The Division of TB Elimination will be sponsoring the regional workshop in Africa this summer.

*—Reported by Bess Miller, MD, MSc
Division of TB Elimination*

Notes from the Field: TB Control in India

The burden of TB in India is simply mind-boggling. There are approximately 2 million new cases of the disease every year — more cases in 4 days than in the entire United States in a year. Every day, more than 1,000 people die from TB in India.

Adding to this epidemic are the dual threats of drug resistance and HIV. Data on the rate of drug resistance in India are sparse, but the best conducted evaluations indicate a rate of primary drug resistance of at least 15% and primary multidrug resistance of around 3% to 3.5%.

For every 1% increase in the prevalence of HIV infection among adults in India, there would be at least 250,000 additional TB cases per year: 1% of 450 million adults (4.5 million HIV-infected persons), 60% of adults are TB-infected (2.7 million), and 7% to 10% progress to active TB per year (plus newly infected persons progressing to active TB.) One challenge is whether effective TB control can be implemented before HIV spreads more widely.

Despite having a remarkable history of research in TB, India's national performance has not met its expectations. Under the national program, about 1.3 million cases are registered for treatment each year. Only about 260,000 of these (both new and old cases) are smear-positive, and of these, only 20% to 40% complete treatment. This means that of the estimated 800,000 new smear-positive cases arising every year, at most 30% are detected in the program and no more than 10% to 15% of the estimated total complete treatment. On a national scale, the results are thus similar to those in Harlem before the improvement in the control program there, when 11% of patients completed treatment.

Since 1993, India has implemented the World Health Organization (WHO)-recommended strategy of DOTS (directly observed treatment, short-course) on a pilot basis. In these areas, the quality of diagnosis is markedly better — more than half of all pulmonary patients have positive smears and about 80% of patients complete treatment. In 1998, the program was expanded from a pilot population of about 20 million at the beginning of the year to a population of nearly 90 million by the end of the year. The project is mostly funded from a World Bank "soft loan" (i.e., about a 75% grant equivalent because of very low interest and 30-year repayment terms) of \$142 million. The British and Danish governments also provide assistance in covering one State each.

In partnership with WHO, CDC provides technical support to the World Bank and the Government of India. In the following paragraphs, the important challenges and issues are summarized. The five-point strategy of DOTS is a good framework for evaluating programs. Although not engraved in stone, this strategy encompasses all key aspects of TB control — political commitment, accurate diagnosis, effective treatment (including an uninterrupted and reliable drug supply), and effective monitoring and supervision (including training).

Political commitment. As in any area, this is important at every level. Broadly speaking, programs need to perform three activities: hire or deploy staff, enter into contracts for services, and procure goods. The speed and quality of each of these three activities is important at national, state, and local levels.

Accurate diagnosis. Diagnosis of TB in high-prevalence countries is best done by direct smear microscopy of three samples obtained on 2 consecutive days (an on-the-

spot sample on each day, and an early morning sample on the second day). This simple technique, if done correctly, will identify about 50% to 70% of the total pulmonary cases and about 90% of those who are spreading TB. It is simple, low cost, and highly specific. Patients who have negative smears should be given a 10-day course of antibiotics for respiratory infection (e.g., trimethoprim-sulfamethoxazole) and if symptoms persist, undergo x-ray (and repeat sputum examination, if possible). If the x-ray is abnormal and consistent with TB, then anti-TB treatment is given. Using this algorithm-based diagnostic approach results in placing patients on treatment more rapidly than using available culture techniques, and avoids the risk and expense of culture. Smear-negative patients who do not return for follow-up and those with normal x-rays may be missed, but these patients are unlikely to either be severely ill or to be major transmitters of infection.

The two biggest challenges in this area are to avoid overdiagnosis of smear-negative cases and to ensure that patients from all health institutions are referred for sputum examination. Overdiagnosis of smear-negative cases is a chronic problem. With such a large number of prevalent cases, and so many other respiratory infections, it is likely that many patients who have a cough may have abnormal x-rays. Many of these x-rays may appear quite consistent with TB. Patients with scarred or fibrotic lungs often have a cough and other respiratory symptoms and may expect anti-TB treatment. Often, prescribing anti-TB treatment for these patients is the path of least resistance for physicians. This is addressed in the DOTS program by ensuring that three good-quality smears are examined, and by following the diagnostic algorithm. In this way, the ratio of smear-positive to smear-negative patients improved from 1:4 in the national program

to 1:1 in the revised program.

Uninterrupted supply of drugs for short-course chemotherapy. It is axiomatic that patients will not complete treatment unless drugs are available! In India's DOTS program, all treatment is according to WHO categories, and drugs are packed in blister strips. In the first 2 to 3 months, every dose is directly observed and one blister strip contains all the drugs for one day. In the continuation phase, the first dose each week is directly observed, and the blister strip contains the drugs for the week. The drugs are packaged in boxes, one for each patient. This greatly simplifies logistics of drug delivery, and also gives patients confidence that they will have a full course of treatment available — as soon as a patient begins treatment, he is shown a box, his name is written on it, and he is assured that the full course of drugs will be available. However, the boxes also increase the storage space required by the drugs and reduce shelf life, since rifampin has a shorter shelf life than the other drugs. The program has to avoid drug stock-outs on the one hand, and drug expirations on the other.

Direct observation of treatment. In the United States, DOT is seen as the major technical change in TB control in recent years. However, in many developing countries it is important to stress, on the one hand, that all five components of the DOTS strategy are essential and, on the other hand, that DOT must occur. The WHO formulation for DOT is that it should be done by persons who are accessible and acceptable to the patient and accountable to the health system. Since family members are not accountable to the health system, family observation is not considered an effective means of ensuring DOT; it has been tried in some countries but is not acceptable in the program in India. Ensuring that DOT is convenient to

DOT vs. DOTS: What's in a Letter?

DOT is the observation of the ingestion of medication by a trained individual who should be accessible and acceptable to the patient and accountable to the health system. In contrast, DOTS refers to a specific strategy for TB control developed by Dr. Karel Styblo of the International Union Against Tuberculosis and Lung Disease and adopted by WHO. The five components are:

Political and administrative commitment (e.g., budgetary allocation, hiring authority).

Diagnosis based on sputum microscopy of patients reporting to health facilities.

Microscopy identifies the infectious patients; active case finding in the community is discouraged as most patients with TB attend health facilities but their diagnosis is missed (compare "Think TB" — CDC appropriately emphasizes diagnosis of patients attending health facilities, not community-based case finding).

Good quality drugs. An uninterrupted supply of good quality anti-TB drugs must be available.

Short-course chemotherapy given by direct observation.

Systematic monitoring and accountability. The program is accountable for the outcome of every patient who begins treatment. The quality of diagnosis and cure rate is monitored quarterly at every level of the health system, and if any area is not meeting expectations, supervision is intensified. The register-based information system that Dr. Karel Styblo designed is remarkably powerful, and allows data verification, program management, and epidemiologic analysis.

patients is a major challenge. In rural areas, ensuring access over long distances is an issue. This can be managed by involving front-line health staff who are deployed, in India, for every 5,000 population. Where such staff do not exist, community volunteers can be used, and can receive a small honorarium for each patient cured (around \$5). In urban areas, the major challenge is the mobile population, migrant workers, and day laborers who must often choose between attending a DOT session and working — and hence, between medicine and food for the day. To address these difficulties, whenever possible volunteers in the community, including cured patients, and community organizations that can open in the early morning or late evening for working patients, are involved in the

program.

Additional challenges are social attitudes. In the field of leprosy there is a tradition of helping patients among both the medical community and community organizations. In TB, this tradition does not exist. Encouraging DOT workers to establish a strong rapport and communication with TB patients is key to program success. All over the world, effective DOT providers marvel at and are encouraged by their experience of helping patients get better, often remarking that, for the first time in their health work, they know that they are making a real difference in patients' lives.

Supervision and monitoring. As in most public health programs, the key to success is not technical excellence but managerial

competence. Supervision at all levels needs to be frequent, meaningful, and effective. This means that those who offer DOT are trained, supervised, and given effective backup. Those who perform microscopy and who maintain the TB registers must be trained, given the resources they need to function effectively, and are well supervised. Doctors need to be well trained and need feedback on the quality of their diagnosis and treatment. Program managers at all levels need training, feedback, and supervision.

A key tool for supervision and monitoring is the quarterly reporting system, designed by Dr. Karel Styblo of the International Union Against TB and Lung Diseases. This system is remarkably robust. It is simple enough to be completed by people who are barely literate, intricate enough to be impossible to falsify without extraordinary effort, and powerful enough to be used for clinical management, program management, and epidemiologic analysis. Results from the quarterly reports are used to provide feedback to reporting areas on a quarterly basis on the quality of their diagnosis and treatment. The three key indicators used are 1) the ratio of smear-positive to smear-negative pulmonary cases (no more than one smear-negative case is expected for every smear-positive case, otherwise diagnosis is most likely not being done according to policy), 2) the proportion of new smear-positive patients who convert from smear-positive to smear-negative by the end of the third month of treatment (the target is >90%; anything below 80% indicates a serious problem, most likely failure to ensure effective DOT), and 3) the rate of successful treatment of new smear-positive patients (the goal is 85%; anything below 80% indicates a serious problem). The sputum conversion rate is a key indicator, since it allows monitoring of areas into which the program is newly expanding. This is because

treatment outcomes are only available 12-15 months after patients begin treatment, but sputum conversion is available 4 to 6 months after patients begin treatment. Case detection rates are also monitored; as programs improve, case detection tends to increase for the first several years, as a result of the "recruitment effect" of providing reliable services.

A new method of providing prompt feedback on these key reports is to travel to areas implementing the program and use an LCD projector and notebook computer to enter and project all areas' reports in standardized software (Epi-Centre). This is useful both because the data entry process identifies discrepancies in reports, which can be corrected on the spot based on the TB registers, and because it allows graphic presentation in maps, bar graphs, pie charts, and lists of relative performance in different areas. This allows for a healthy competition between areas, and group problem-solving on common challenges.

During 1998, the Indian DOTS program increased population coverage from 20 million to about 90 million. By March 1999, 120 million were covered and the program had treated more than 100,000 patients. As of July 1999, more than 10,000 TB patients are being put on treatment under DOTS in India every month. This represents an enormous advance and the savings of more than 15,000 lives in 1999 alone. Based on the experience of this expansion, a decision will be taken on how to most effectively expand DOTS nationally, while still ensuring good quality of treatment. It is an exciting and challenging time, and WHO and CDC are fortunate to be part of the team.

*—Reported by Thomas R. Frieden, MD, MPH
Dr. Frieden, who was Director of the New York
City Bureau of TB Control from 1992-1996, has
been assigned to the WHO's South East Asia
Regional Office since 1996.*

Consequences of TB Treatment for Immigrants Applying for Legal Permanent Residence

Several questions have been raised recently by TB controllers in the United States (U.S.) with foreign-born patients who fear that receiving treatment in a publicly funded TB clinic may result in the denial of their adjustment-of-status or immigrant visa application. Written guidance on this issue recently issued by the Immigration and Naturalization Service (INS) explicitly states that non-citizens who receive TB treatment in publicly funded clinics are not in jeopardy of having their application for legal permanent residence denied on grounds that they were likely to become a public charge. To place this concern in context, an explanation of the system for applying for legal permanent residency in the U.S. follows.

Currently, there is basically a two-track system for immigrating to the U.S. One track is based upon employment and the other is based upon family relationship. Both tracks require that a petition must be filed with the INS to classify the applicant under the appropriate preference category. Once the petition has been approved and a visa number is available, the applicant may proceed with the final step of becoming a legal permanent U.S. resident. There are two general avenues for doing this: adjustment-of-status for those individuals residing in the U.S. and eligible to apply, and visa processing for those individuals not eligible to apply for adjustment-of-status, or not residing in the U.S.

Overseas visa processing entails applying for an immigrant visa at a consular office of a U.S. embassy or consulate. Once issued a visa, the applicant may apply for admission to the U.S. on that immigrant visa, and are granted legal permanent residence at the time they pass through the

port-of-entry. In 1997, 380,718 persons obtained legal permanent residence in this manner. Adjustment-of-status applicants in the U.S. are granted legal permanent residence at the time their applications are approved by the INS. In 1997, 417,660 persons obtained legal permanent residency in this manner.

An applicant must be admissible when he or she applies for adjustment-of-status or for an immigrant visa. There are several health-related grounds of inadmissibility, including HIV infection, infectious TB, Hansen's Disease (leprosy), syphilis, gonorrhea, and three other sexually-transmitted diseases. Also, immigrant visa and adjustment-of-status applicants who cannot show proof of being fully immunized against certain vaccine-preventable diseases are inadmissible, until they comply with the vaccination requirements or obtain a medical waiver.

Another ground of inadmissibility relates to public charge. Immigrant visa and adjustment-of-status applicants will be found inadmissible on public charge grounds if, in the opinion of the consular officer at the time of application for a visa, or in the opinion of the Attorney General at the time of application for admission or adjustment-of-status, they are likely at any time to become a public charge. In making such a determination, the Department of State or the INS examines the totality of the circumstances, including an evaluation of the alien's age, health status, family status, assets, resources, financial status, and education and skills. In addition, all family-based immigrants and a limited number of employment-based immigrants are required to have a legally binding affidavit of support executed on their behalf.

Not all publicly funded benefits will be considered by the INS or the State Department in deciding whether someone

is or is likely to become a public charge. The focus of public charge is on income maintenance and institutionalization for long-term care at government expense. Examples of benefits that will *not* be considered for public charge purposes include the following:

- Medicaid and other health insurance and health services (including public assistance for immunizations and for testing and treatment of symptoms of communicable diseases; use of health clinics, prenatal care, etc.) other than support for institutionalization for long-term care.
- Children's Health Insurance Program (CHIP)
- Nutrition programs, including Food Stamps, the Special Supplemental Nutrition Program for Women, Infants, and Children (WIC), the National School Lunch and Breakfast programs, and other supplementary and emergency food assistance programs
- Housing assistance
- Child care services
- Energy assistance, such as Low Income Home Energy Assistance program (LIHEAP)
- Emergency disaster relief
- Foster care and adoption assistance
- Educational assistance, including benefits under the Head Start Act and aid for elementary, secondary, or higher education
- Job training programs
- In-kind, community based programs, services, or assistance (such as soup kitchens, crisis counseling, and intervention, and short-term shelter)

In conclusion, TB controllers can counsel their patients that receiving TB treatment in a publicly funded health department clinic will not jeopardize their application for legal permanent residence in the U.S.

—Reported by Paul Tribble
Division of Quarantine

TRAINING AND EDUCATIONAL MATERIALS

Texas Video, "If I'd known..."

In a joint project by the Texas Department of Health and the University of Texas Medical Branch at Galveston, a video has been produced that tells the story of the transport of an inmate with infectious TB. In "If I'd known...", two actors who portray a correctional officer and an inmate tell of the arrest, incarceration, and release through deportation of a person with symptoms of TB. The video covers TB facts and addresses steps that transportation officers can take to protect themselves and other noninfected inmates from TB. The video runs 8 minutes 30 seconds and is available through the Texas Department of Health at a cost of \$7.00. Please contact Ray Silva at (512) 458-7447 or ray.silva@tdh.state.tx.us for additional information.

NEW CDC PUBLICATIONS

Bloch AB. Directly observed therapy and tuberculosis treatment completion (letter). *Am J Public Hlth* 1999;89(4):602.

Bloch AB, Cauthen GM, Simone PM, Kelly GD, Dansbury KG, Castro KG. Completion of tuberculosis therapy for patients reported in the United States in 1993. *Int J Tuberc Lung Dis* 1999;3(4):273-80.

Moore M, Valway SE, Ihle W, Onorato IM. A train passenger with pulmonary TB: Evidence of limited transmission during travel. *Clin Infect Dis* 1999;28:52-56.

Moore M, McCray E, Onorato IM. Cross-matching TB and AIDS registries: TB patients with HIV coinfection, United States, 1993-94. *Public Health Reports* 1999;114:269-277.

Lifson AR, Halcón LL, Johnston AM, Hayman CR, Hannan P, Miller CA, Valway SE. Tuberculin Skin Testing Among Economically Disadvantaged Youth in a Federally Funded Job Training Program. *Am J Epid* 1999;149(7):671-79.

Schulte JM, Moore M, Kistler V, Margraf P, Christman R, Valway SE, Onorato IM, Stader B. Tuberculosis screening in private physicians' offices, Pennsylvania, 1996. *Am J Prev Med* 1999;16(3):178-81.

PERSONNEL NOTES

Mack Anders, Deputy Chief, Field Services Branch, was on assignment in Russia November 16- December 10, 1998, and February 14 - April 28, 1999. On the first mission he worked with staff of the U.S. Agency for International Development (USAID) - Moscow and collaborators of various Russian institutions to establish the foundation for CDC/USAID-sponsored TB projects in Russia to demonstrate the WHO strategy of directly observed therapy, short course (DOTS) and a program to treat MDR TB (DOTS-Plus). He and a multinational team traveled to several oblasts to review the local TB programs and assess potential for participation in projects. During the week of December 5, he and a team of CDC, WHO, and USAID staff traveled to the three oblasts (Orel, Vladimir, and Ivanovo) selected for the projects to meet with TB staff, health administrators, and political leaders. On the second mission with headquarters at the American Embassy in Moscow, Mack worked with USAID staff, Russia national and local health officials, WHO, and various nongovernmental organizations to establish the administrative, technical, and logistical bases for the projects which are scheduled for implementation this summer.

Warren Benson has accepted an offer of the position of Staff Specialist vacated by

Lisa Favors. Warren brings extensive administrative experience from the National Center for Chronic Disease Prevention and Health Promotion, where he was working in the Division of Adolescent and School Health. He is most noted for his integrity, dependability, and willingness to help others. He joined the division on May 10. Welcome to DTBE, Warren!

Lisa Cairns, MD, will complete her Preventive Medicine fellowship in the Field Services Branch (FSB) at the end of June, and will be joining FSB as a medical officer on July 1, 1999. Lisa earned her BA at the University of Guelph in Canada, MD at Yale, and MPH at Johns Hopkins. She completed a residency in Family Practice at Duke. She was an EIS Officer assigned to the State of Washington from 1996-1998, where she worked on various outbreaks including coccidiomycosis in travelers returning from Mexico. She has also worked in Guatemala, Micronesia, and the Republic of the Congo. During the last 12 months, Lisa has been working on a study of delays in completion of therapy, compiling x-rays for a clinical slide set, and working with the Division of Quarantine with the Kosovar refugees in Fort Dix. In her new position, she will also be working closely with the consultants in providing technical assistance, participating in expanded site visits and other assignments. She will be working as the project officer for the "targeted testing" portion of the FY 2000 cooperative agreement, and continue her work on investigating reasons for delays in completion of therapy. She will also be attending clinic at the Fulton County TB clinic weekly.

Christopher Caudill, PHA assigned to the Chicago TB control program, has been selected for a TDY assignment to Russia. Chris will provide technical assistance for the implementation of the USAID, CDC,

WHO, and MOH TB projects for DOTS and DOTS plus (MDR) in several different oblasts. Chris will begin a 3-month assignment this fall.

Nick DeLuca has been selected for, and has accepted, a position of Health Education Specialist with the Communications and Education Branch (CEB). Nick initially came to CEB on September 1, 1997, as an ASPH fellow bringing to the division experience in health education, behavior change interventions, and instructional design, as well as international experience. He is a PhD candidate in Health Education and Health Promotion at the University of Alabama at Birmingham (UAB) School of Public Health. He holds a Master of Arts in Medical Geography from San Diego State University and a Bachelor of Arts in Geography from State University of New York. In his almost 2 years with the division, Nick has had the lead responsibility for the development of the Web-based Self-Study Modules on Tuberculosis course. He has also taken over as the lead for the development and finalization of the Supplemental Self-Study modules that will be distributed later this year. Congratulations, Nick!

Pat Farah has accepted the offer to work in DTBE and to assume Yvonne Shore's duties after she retires. Pat has extensive administrative and fiscal accounting experience in both the public and private sector. For the past 8 years she worked in the National Center for Chronic Disease Prevention and Health Promotion, Division of Oral Health. She is noted for her dependability, her eye for detail, and her willingness to help others. She began work on May 10. Welcome to the division, Pat!

Maria Fraire, MPH, CHES, health educator with the Communications and Education Branch, was one of four individuals

honored with an Outstanding Service Award from the CDC interest group Public Health Education and Promotion Network (PHEP-NET) for assisting with the development of the network's Intranet. The awards were presented on April 8 at the spring 1999 membership meeting. Maria has also been selected for, and accepted, a position of Health Education Specialist with CEB. Maria was already a Health Education Specialist with CEB; however, she applied, interviewed, and was selected for one of the vacancies created by a staff departure and a staff promotion. Maria is a registered respiratory therapist who returned to school to pursue a degree in health education and an MPH in Behavioral Science and Health Education from Emory. She joined CEB in May 1996 as an ASPH Fellow. During her first year in the division, she worked on a number of projects, but principally Maria took the lead for updating and overseeing the TB Program Managers Course. In 1997, Maria came on board as a full-fledged DTBE employee, as a health education specialist. She has since worked on a number of projects including the update and revision of the Core Curriculum on TB and serving as the project lead for our Internet home page. Congratulations, Maria!

Darryl Hardge has been selected for the vacant TB public health advisor position in Baltimore, Maryland. Darryl will coordinate the activities of both central office and clinic staff and will oversee the development, implementation, and evaluation of a comprehensive TB program. He will also collaborate with community leaders, area university schools of medicine, public and private service providers, and other key persons and agencies to provide clinical and outreach services. Darryl came to work for CDC in May 1991 as a public health associate I in the Division of Sexually Transmitted Disease Prevention assigned to the Division's Disease

Intervention Specialist (DIS) training center in Decatur, GA, with subsequent assignments in Milwaukee and Baltimore. In October 1997, Darryl joined DTBE and was assigned to the Louisiana TB program. He began his new assignment in Baltimore on May 9.

Wendy Heirendt has been selected for the vacant TB public health advisor position in Virginia. Wendy will serve as the Virginia Division of TB Control's program development manager, an integral member of the executive management team responsible for development of program policy and performance objectives. Wendy began her career with CDC in August 1987 as a Division of Sexually Transmitted Disease Prevention (DSTDP) program representative assigned to the Marion County (Indiana) Health Department. In December 1988, she was reassigned to the Prince George's County (Maryland) Health Department where she continued her STD activities. In July 1991 she joined DTBE and was assigned to the Puerto Rico TB program. Since April 1993 Wendy has been in her current assignment in Indianapolis, Indiana, serving as DTBE's senior PHA for the state and as the TB program director. Wendy began her duties in Richmond on June 6.

Wally Ihle, Deputy Chief of the Surveillance and Epidemiology Branch (SEB), DTBE, retired April 30, 1999, after 35 years of service. Wally started with CDC's Sexually Transmitted Diseases program in 1964. He transferred to the TB program in 1966 and completed assignments in Philadelphia and Massachusetts. In 1972 he left CDC and went to the PHS Regional Office in Philadelphia. While in the Regional Office, Wally served in many different capacities: he was the Deputy Director of the National Health Service Corps, the Director of Grants Management, and the Executive Officer for the Region. He returned to

DTBE in 1988 and served as the Deputy Chief of the Surveillance and Epidemiology Branch until his retirement. Wally is well-known and respected for his ability to get things done, and well-liked for his impish sense of humor and twinkling eyes. Even at the busiest and most hectic times, he always looks like he is having fun. We'll miss you, Wally!

Janet Larson, MD, will be joining the division in July as an EIS Officer assigned to the International Activity. She graduated in 1988 from the University of Minnesota with a BS degree in biology, and received her MD degree in 1993 from the University of Minnesota School of Medicine. In 1996 she completed an internship and residency in internal medicine at the University of Pittsburgh Medical Center and completed a fellowship in infectious diseases at the University of Minnesota School of Medicine. Her work experience has included a variety of medical and research positions in laboratory, clinical, and emergency-care settings. Her volunteer experience includes a summer externship at Black River Hospital, St. Elizabeth, Jamaica, as a medical and surgical assistant in 1988, as well as 3 months as a clinician at Mbingo Baptist Hospital, Cameroon, West Africa, in 1993. From July 1997 until the present she worked as a TB control physician providing clinical care for TB patients and general health screening for refugees at the Hennepin County Health Department in Minnesota.

Kayla Laserson, ScD, an EIS Officer with the International Activities Branch (IA), will join IA as a staff epidemiologist in July 1999 after completion of the EIS program. In addition, Kayla was recently honored as the 1999 recipient of the prestigious Mackel Award. The EIS Alumni/ae Association sponsored the Fourteenth Donald C. Mackel Memorial Award, which was presented during the EIS Conference in

April. This prestigious award recognizes the presentation that best exemplifies the effective application of a combined epidemiologic and laboratory approach to an investigation. Those presentations for which the first author is a current EIS Officer and at least one coauthor is a CDC laboratorian can be considered for the award. The Donald C. Mackel Memorial Award Committee, co-chaired this year by Dr. Paul Garbe of the National Center for Environmental Health and Dr. Thomas Navin of the National Center for Infectious Diseases, were responsible for selecting the 1999 winners. Normally awarded for an oral presentation, this year the Mackel Award was given for a poster presentation. Victoria Lee, graphics staff member of the Communications and Education Branch, assisted with the highly effective and creative design and layout of the poster.

Diana Mazzella of Field Services Branch was one of the finalists among the hundreds of nominees for the *Outstanding Technician/Assistant Award* at the 26th Annual Federal Employee of the Year Awards Luncheon, which was held on Monday, May 3, 1999, at the Atlanta Marriott Marquis Hotel. This year, CDC had five nominees for the Federal Employee of the Year Awards.

Scott McCoy has been selected for, and has accepted, the position of Health Education Specialist with CEB. Scott has been working with the division for the last 1 ½ years in his role as Marketing Communications Specialist with the NCHSTP Office of Communications (OC). In this position, he has been the OC lead for the National Tuberculosis Communication Plan and TB Partnership Initiative. Scott has an undergraduate degree in psychology from the University of Georgia, a Masters in Education and a Specialist in Education certification from Georgia State University. He brings

extensive experience in developing, implementing, and evaluating educational programs around the problems of alcohol/substance abuse. Along with his TB duties while working in OC, Scott was also responsible for the formative research efforts in the "Know Your HIV Status" campaign being developed by the Division of HIV/AIDS Prevention. Welcome to the division, Scott!

Peter D. McElroy, PhD, MPH, will be joining the division as an EIS Officer assigned to the Surveillance and Epidemiology Branch. Peter received an MPH degree in 1992 and a PhD degree in Epidemiologic Science in 1998, both from the University of Michigan School of Public Health. He served as a Peace Corps volunteer in Kenya as a community health worker from 1987 to 1989, and worked as a researcher with the Naval Medical Research Institute in Bethesda, Maryland, from 1993 to 1994. From 1994 to 1996 he assisted in the instruction of introductory and advanced epidemiology courses in the Department of Epidemiology, University of Michigan School of Public Health. In 1996 and 1997 he worked as a data analyst with the Michigan Public Health Institute in Detroit, Michigan, and as a graduate student research assistant conducting statistical analyses at the University of Michigan. From 1998 to the present, he has been working as a guest researcher in the Division of Parasitic Diseases here at CDC. Peter will join the division in July.

Paul Poppe, Associate Director for Management and Operations of DTBE, was the 1999 recipient of the *Outstanding Supervisor Award* from the Atlanta Federal Executive Board. This award was presented to him on May 3, 1999, at the Atlanta Marriott Marquis Hotel at the 26th Annual Federal Employee of the Year Awards Luncheon. Paul was selected from 11 finalists, who had been selected from

among several hundred nominees. Atlanta-area Federal employees were honored; specifically, nominees from Atlanta Federal agencies in 12 categories were recognized for their achievements and service to the public over the past year.

Steven Shapiro has been selected by DTBE, the Division of Sexually Transmitted Diseases Prevention (DSTDP), and the Division of HIV/AIDS Prevention (DHAP) for the vacant senior public health advisor position in the Maine Department of Human Services, Bureau of Health. Steve will serve as an across-the-board advisor to and integral member of the Maine STD, HIV, and TB programs, and will work closely with the three state program managers, as well as the state epidemiologist, to assist in developing program policy, procedures, and evaluation methods. Steve began his career with CDC in June 1989 as a DSTDP public health associate I assigned to the Broward County (Florida) Public Health Unit. In January 1993, Steve transferred to the Dade County (Florida) Public Health Unit STD program, to which he is currently assigned. Steve began his new assignment in Augusta on May 23, 1999.

Yvonne Shore has decided to retire from Federal service effective July 2. Yvonne has had 25 years of federal service, all of which was with CDC. She came to work for CDC in the early 1960s in the TB control office at Clifton Road, before TB control was a division and before CDC was organized into Centers. She left CDC for a few years to be home with her young child, then returned. In the mid-1980s she left CDC and did volunteer work at a local elementary school, and later worked as a paraprofessional in the DeKalb County school system. In the late 1980s she returned to CDC to work in the Center's Resource Analysis Office. In that position she was responsible for assisting in the

processing and tracking of all extramural fiscal obligations for the Center. In June 1996 she returned to DTBE as a Resource Analysis Assistant in the Office of the Director, responsible for assisting in the budgetary and resource management activities. Yvonne plans to enjoy her retirement by traveling, gardening, reading, and visiting her family in North Georgia. She will have no problem finding a foot-loose travel companion since her husband is retiring, too, in August. We will truly miss Yvonne and her ever-present smile!

Vivian Siler has joined the Communications and Education Branch as Program Operations Assistant. Vivian has been working with DTBE educational and training materials since 1993 as a Senior Information Specialist contractor with the NCHSTP Office of Communications. In this position she served as the lead person in the information/dissemination process for the Office which included responding to requests for publications from a variety of persons and maintaining the publications inventory system. This included working with DTBE publications and the ordering and dissemination of these publications on a daily basis. She brings extensive knowledge regarding the content, online ordering system, and inventory system of these materials. Welcome to the division, Vivian!

Philip R. Spradling, MD, will be joining the division as an EIS Officer assigned to the Surveillance and Epidemiology Branch. Philip received his medical degree in 1985 from the University of Texas Medical School at Houston, and in 1988 he completed a residency and an internship in internal medicine at St. Joseph Hospital, Denver, Colorado. From 1988 to 1994 he served as a staff physician at Kaiser Permanente in Denver, first in internal medicine and urgent medical care, then in chemical dependency treatment services.

In 1994 and 1995 he worked as a primary care physician at the Westminster Medical Center in Westminster, Maryland. He most recently served as the medical director of Addiction Services and as a TB clinic physician in the Communicable Diseases Program at the Anne Arundel County Department of Health, Annapolis, Maryland, from 1995 to 1998. He will join the division in July.

Peg Tipple, MD, will be joining the Field Services Branch (FSB) in a field assignment to Washington, DC, as Medical Director of the DC TB program, starting July 12, 1999. Peg earned her medical degree at SUNY - Downstate Medical Center in Brooklyn, N.Y. She trained as a pediatrician and as a fellow in infectious diseases at the Medical College of Virginia. She also trained in pediatric infectious diseases at the University of Illinois. She was an EIS Officer in the Hospital Infections Program, and continued her work at CDC in the Division of Viral and Rickettsial Diseases. Many DTBE staff know her from her tenure in the Division of Quarantine where she did much work on tuberculosis. Most recently, she has been working in the Office of Health and Safety. Initially, she will be working on surveillance issues and clinical management issues, and fostering collaboration with the medical providers and institutions throughout the District and with the Maryland and Virginia TB programs. She will be working closely with many of the staff in DTBE on these issues.

Sarah Valway, DMD, MPH, retired from CDC in May after more than 22 years of service with the U.S. Public Health Service. She started her PHS career in 1976 working with the Indian Health Service (IHS). In 1986 she joined CDC as an EIS Officer assigned to the States of Colorado and New Mexico. In 1991, she joined DTBE as a staff medical epidemiologist.

She became Chief of the Epidemiology Section in the Surveillance and Epidemiology Branch in 1993 and served in that position until her retirement. While in DTBE she led many outbreak investigations and supervised the development and implementation of a number of national epidemiologic studies, including the National TB Genotyping and Sentinel Surveillance Network, TB in children, the contact investigation study, and school, college, and Job Corps screening studies. The outbreak investigations of transmission of *M. tuberculosis* on airplanes led to the development of national and World Health Organization recommendations which she coauthored. In her retirement Dr. Valway plans to continue working in the TB arena, doing some teaching and consulting. Her new email address is sev1@gateway.net.

CALENDAR OF EVENTS

July 12-16, 1999

TB Program Manager's Course San Francisco, California

Training Coordinator
Francis J. Curry National TB Center
Tel: (415) 502-4600

September 13-14, 1999

31st Bi-Annual Education Conference Redondo Beach, CA

California TB Controllers Association
Lynda Wagner
Tel: (510) 883-6077

September 15-18, 1999

30th World Conference of the International Union Against TB and Lung Disease

Madrid, Spain
Tel: 93-487-51-06
Fax: 93-488-21-54
E-mail: bcm@filnet.es

September 22, 1999

TB Skin Testing Workshop

San Francisco, California

Training Coordinator

Francis J. Curry National TB Center

Tel: (415) 502-4600

September 22, 1999

TB in HIV-Positive Patients

Newark, New Jersey

NJ Medical School National TB Center

Rajita Bhavaraju

Tel: (973) 972-4811

October 4, 1999

TB Update I: Managed Care and TB

Newark, New Jersey

NJ Medical School National TB Center

Rajita Bhavaraju

Tel: (973) 972-4811

October 6-7, 1999

**Meeting of the Advisory Council for the
Elimination of TB**

Atlanta, Georgia

CDC

Tel: (404) 639-8158

October 7-8, 1999

TB Outreach Worker's Course

San Francisco, California

Training Coordinator

Francis J. Curry National TB Center

Tel: (415) 502-4600

October 18-21, 1999

TB Program Manager's Course

Newark, New Jersey

NJ Medical School National TB Center

Rajita Bhavaraju

Tel: (973) 972-4811

October 18-22, 1999

**Postgraduate Course on Clinical
Management and Control of TB**

Denver, Colorado

National Jewish Medical and Research
Center

Catheryne J. Queen

Tel: (303) 398-1700/Fax: (303) 398-1906

October 20-22, 1999

TB Intensive Course

San Francisco, California

Training Coordinator

Francis J. Curry National TB Center

Tel: (415) 502-4600

November 5, 1999

**Use of Surveillance Data to Guide and
Evaluate TB Control Programs**

San Francisco, California

Training Coordinator

Francis J. Curry National TB Center

Tel: (415) 502-4600

November 8, 1999

TB 101

Newark, New Jersey

NJ Medical School National TB Center

Rajita Bhavaraju

Tel: (973) 972-4811

November 17, 1999

**TB Update II: Medical Management of
New TB Medications**

Newark, New Jersey

NJ Medical School National TB Center

Rajita Bhavaraju

Tel: (973) 972-4811

December 8, 1999

TB Update Course

San Francisco, California

Training Coordinator

Francis J. Curry National TB Center

Tel: (415) 502-4600

December 15, 1999

TB Skin-Testing Workshop

San Francisco, California

Training Coordinator

Francis J. Curry National TB Center

Tel: (415) 502-4600

January 31-February 4, 2000

**Postgraduate Course on Clinical
Management and Control of TB**

Denver, Colorado

National Jewish Medical and Research
Center

Catheryne J. Queen

Tel: (303) 398-1700/Fax: (303) 398-1906

April 24-28, 2000

**Postgraduate Course on Clinical
Management and Control of TB**

Denver, Colorado

National Jewish Medical and Research
Center

Catheryne J. Queen

Tel: (303) 398-1700/Fax: (303) 398-1906
